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Report

drawn up on behalf of the Committee on Energy and Research

on the proposal from the Commission of the European Communities to the Council (Doc. 27/79) for a/multiannual programme of the Joint Research Centre 1980-1983

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By letter of 26 March 1979 the President of the Council of the European Communities requested the European Parliament, pursuant to Article 235 of the EEC Treaty, to deliver an opinion on the proposal from the Commission of the European Communities to the Council for a decision on the Multiannual Programme of the Joint Research Centre 1980-1983.

The President of the European Parliament referred this proposal to the Committee on Energy and Research as the committee responsible and to the Committee on Budgets and the Committee on the Environment, Public Health and Consumer Protection for their opinions.

On 25 January 1979 the Committee on Energy and Research appointed Mr Flämig rapporteur.

It considered this proposal at its meetings of 21 March 1979 and 4 April 1979.

At its meeting of 4 April 1979 the committee unanimously adopted the motion for a resolution and the explanatory statement.

Present: Mrs Walz, chairman; Mr Flämig, vice-chairman and rapporteur; Mr Veronesi, vice-chairman; Mr Ansquer, Lord Bessborough, Mr Fioret, Mr Fuchs, Mr Ibrügger, Mr Lagorce (deputizing for Mr Laurain), Mr Lamberts, Mr Liogier, Mr Noè and Mr Osborn.

The opinions of the Committee on Budgets and the Committee on the Environment, Public Health and Consumer Protection are attached.

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The Committee on Energy and Research hereby submits to the European Parliament the following motion for a resolution, together with explanatory statement:

MOTION FOR A RESOLUTION

embodying the opinion of the European Parliament on the proposal from the Commission of the European Communities to the Council for a multiannual programme of the Joint Research Centre 1980-1983

The European Parliament,

- having regard to the proposal from the Commission of the European Communities to the Council (COM(79) 121 final),
- having been consulted by the Council (Doc. 27/79),
- having regard to the report of the Committee on Energy and Research and the opinions of the Committee on Budgets and the Committee on the Environment, Public Health and Consumer Protection (Doc. 54/79),
- having regard to its previous resolutions on Community research and in particular its resolutions :
 - on the conditions for a fresh start in Community research at the Joint Research Centre¹;
 - on the communication from the Commission of the European Communities to the Council on the objectives, priorities and resources for a common research and development policy²;
 - on the proposal from the Commission of the European Communities to the Council (Doc. 145/76) for a multiannual research programme of the Joint Research Centre (1977-1980)³,
 - considering the serious accident to the nuclear reactor at Harrisburg, Pennsylvania, USA ;
- 1. **Endorses** the criteria used for selecting research activities in the proposed multiannual programme of the Joint Research Centre ;
- 2. **Believes** that the choice of actions to be carried out in this programme corresponds to the needs of the Community ;

¹ OJ No. C 125, 8.6.1976, p. 16

² OJ No. C 125, 8.6.1976, p. 18

³ OJ No. C 238, 11.10.1976, p. 11

3. Is pleased to note the priority accorded to research programmes in the field of energy ;
4. Approves the fact that the programme is to concentrate on a limited number of research topics ;
5. Supports the idea of reviewing the programme in its third year so that it can be succeeded by a new programme during its fourth year ;
6. Stresses the need to coordinate as in the past the JRC's research activities with research being carried out through indirect action and with the research programmes of the Member States ;
7. Emphasizes the importance of making the fullest possible use of research results and of disseminating knowledge derived from the Community's research activities ;
8. Expresses its satisfaction with the ratio of staff costs to operating expenditure ;
9. Feels that, in view of the need to rejuvenate the personnel of the JRC, the Commission should be authorized to recruit additional staff at the start of the programme, provided that, by the end of the programme, the number of staff would not exceed the total authorized ;
10. Stresses the need for intensified research into reactor safety and welcomes the fact that 48% of the appropriations proposed for the new programme are to be allocated to 'nuclear safety and the fuel cycle'; demands, moreover, that the results of the enquiry into the serious incident at the Three Mile Island reactor near Harrisburg, Pennsylvania, USA be given special consideration in this area of research ;
11. Welcomes the cooperation of third countries in the execution of the multiannual programme of the JRC, and particularly the involvement of the USA and Japan in the reactor safety programme ;
12. Notes that the Joint Research Centre could have a useful role to play in a Community policy of cooperation with developing countries in the energy field ;
13. Calls on the Council to take a decision whereby the use of the ESSOR reactor through the SUPER-SARA project, which is necessary if an important part of the reactor safety programme is to be carried out, form part of this new programme ;
14. Takes note of the Annual Report of the Court of Auditors for the financial year 1977¹, and calls on the Commission to ensure that the financial management of the 1980-1983 programme will not give rise to similar criticism ;
15. Approves the proposal for a multiannual programme of the Joint Research Centre 1980-1983.

¹OJ No. C 313, 30.12.1978

EXPLANATORY STATEMENTI. INTRODUCTION

1. After a period of uncertainty and one year programmes lasting from 1967 to 1973, a multiannual Joint Research Centre research programme was drawn up for the years 1973-1976. This programme constituted an intermediate phase in the reorganization of the Joint Research Centre and was followed by the first of the new style multiannual programmes which covered the years 1977-1980 and was the subject of a report by Mrs Walz¹. One of the novel features of this programme was the provision whereby it was to be reviewed during its third year so that it could be replaced by a new multiannual programme at the beginning of its fourth year. The proposed programme which is at present being considered should therefore take over from the current programme on 1 January 1980.

II. OBJECTIVES AND CHOICE OF PROJECTS

2. In 1974 the then Committee on Energy, Research and Technology started work on a report on the conditions for a fresh start on Community research at the Joint Research Centre². This report expressed the view that future multiannual research programmes should be drawn up to suit the interests of the Community as reflected in the following criteria:

- the scope of the research should be large enough to justify pooling all intellectual capacity at Community level;
- the subject of the research must be relevant to the Community and where possible benefit the public services of the Community;
- the subject of the research must fall within the framework of Community policies.

3. This report emphasized the need to concentrate Community research undertaken at the Joint Research Centre on a limited number of topics which satisfied the criterion of the interest of the Community, and considered that research activities in the energy sector should constitute a central element of the future multiannual programme.

¹ Doc. 283/76, OJ No. C 238, 11.10.1976, p. 11

² Rapporteur Mr Flämig, Doc. 49/76, OJ No. C 125, 8.6.1976, p. 16

4. In 1975 the Commission submitted a communication¹ to the Council on the objectives, priorities and resources for a common research and development programme. This communication was approved by the Committee on Energy and Research and the European Parliament². It laid down five criteria for the choice of research projects. These criteria were as follows:

- action designed to contribute directly to the implementation of the Community's sectoral policies (e.g. energy, environment, agriculture etc.);
- action which, because of the extent of the human and financial resources required, cannot be carried out on a national basis (e.g. thermonuclear fusion);
- action where development costs and outlets call for a huge market (e.g. aeronautics, data processing);
- action that is transnational by its very nature (e.g. transport and telecommunications systems);
- action meeting local authority requirements common to the Member States (e.g. environment, town planning, CBR etc.).

It was intended that these criteria should apply to both direct and indirect actions.

5. The multiannual Joint Research Centre research programme (1977-1980) was drawn up in the light of the above-mentioned criteria. To a great extent these criteria have been retained for the new programme (1980-1983), and the Commission has summarised the Joint Research Centre's role in the field of Community scientific and technological policy as follows:

- (a) The execution of programmes of a 'central' nature : the concentration of the JRC on research activities
- which justify the establishment of a broad research potential at Community level,
 - which call for the centralization of facilities or functions (e.g. by the creation of large-scale installations),
 - in which the JRC can act as a focal point or catalyst for coordination at Community level, and finally,
 - in which it can promote the application of new technologies throughout the Community.

¹ COM(75) 535 final

² Report by Mr Krieg, Doc. 71/76, OJ No. C 125, 8.6.1976, p. 18

- (b) The performance of a public service role : the JRC is developing this by meeting the needs of Government organizations, universities and industry for specialized equipment, know-how, products and services. A significant factor in this respect is the independent position of the JRC and its impartial judgment.
- (c) The provision of services to the Commission : the JRC can act as the Commission's own tool in the provision to it of scientific and technical expertise and support in the formulation and implementation of the sectoral policies of the Communities. An important new development in this respect is the contribution which the JRC can make to scientific and technical co-operation with the developing countries within the development policies of the Community'.

6. The Committee on Energy and Research finds itself in agreement with the Commission with regard to the role of the Joint Research Centre as defined above.

III. THE MULTIANNUAL PROGRAMME 1980-1983

7. The proposed new programme would to a fairly large extent - about half - represent a continuation of the current activities of the Centre. At the same time certain aspects of the programme have been modified to fit in better with Community sectoral policies or as a result of the experience gained in 1977 and 1978.

8. The programme can be broken down into the following six research areas, one of these, 'Operation of large scale installations', having been a supplement to rather than an integral part of the 1977-1980 programme. Four of these research areas are in turn sub-divided into individual programmes. The new programme has been summarised as follows by the Commission:

'The programme centres around six research areas (as against five in the 1977-80 programme) :

The area "Nuclear Safety and the Fuel Cycle" is subdivided into four programmes :

- A.1. Reactor Safety
- A.2. Plutonium Fuels and Actinide Research
- A.3. Safety of Nuclear Materials
- A.4. Safeguards and Management of Fissile Materials

The fact that the programme on Safeguards and Management of Fissile Materials comes under this heading rather than among the support projects is due to the scale of the research that needs to be done and its potential value as a support to the work of the IAEA.

The area "Future Forms of Energy" is again subdivided into four programmes :

- B.1. Solar Energy
- B.2. Hydrogen Production, Storage and Transport of Energy
- B.3. Thermonuclear Fusion Technology
- B.4. High Temperature Materials

Programme B.2. takes account of the evolution of the work, and provides for the research to be extended to techniques of storing energy in forms other than hydrogen.

The area "Study and Protection of the Environment" comprises two programmes :

- C.1. Protection of the Environment
- C.2. Remote Sensing from Space

In view of their homogeneity, it seemed expedient to group all the activities associated with Remote Sensing from Space under programme C.2. rather than distribute them according to their uses.

The area "Nuclear Measurements" is dealt with in a single programme of the same name. Owing to its orientation, the non-nuclear section of the METRE programme is included in topic E under the heading "Support to the CBR" .

The area "Specific Support for the Commission's Sectoral Activities" is subdivided into six programmes :

- E.1. Informatics
- E.1. Support to Safeguards
- E.3. Support to the Community Bureau of Reference
- E.4. Training and Education
- E.5. Valorization of Research Results
- E.6. Provision of Scientific and Technical Services on Request

There is no separate programme of support for another important sectoral activity, development aid. Owing to the specific nature of the contributions the JRC will be called upon to make, provision for such support is made under the appropriate programmes, in particular Solar Energy, Remote Sensing and Training.

Lastly the area "Operation of Large-Scale Installations" is represented at the moment by one programme only relating to the operation of the HFR reactor'.

9. The "nuclear safety and fuel cycle" area is by far the most important, accounting for 48% of the credits proposed for the new programme.
10. Particular attention is to be given to the evaluation of research and the exploitation of research results in the newly proposed programme. Both in-programme evaluation and external evaluation are provided for and the Commission has devoted an important section of its proposal to this vital aspect.
11. The system of regular half-yearly progress reports on each programme will be continued. These describe the objectives for the period in question, the extent to which these objectives have been achieved, difficulties encountered and reasons for any delays or re-adjustments, as well as outlining the work to be undertaken during the next six months.
12. In the functional budget, credits are allocated to the different projects on the basis of their respective use of laboratories and installations and this utilisation is measured by monthly accounts and weighting coefficients. This procedure constitutes a further element of evaluation and supervision.
13. An attempt is being made to evaluate results by various means. Perhaps the most obvious evaluation relates to publications and the number of quotations from these publications in outside literature. Also significant are patents and licences and the reaction to work undertaken on behalf of outside bodies under contract, or for other Commission departments.
14. In addition the Advisory Committee on Programme Management (ACPM) which exists for each aspect of the programme assesses the work conducted under each programme on an annual basis. The General Advisory Committee (GAC) reviews the overall activity of the JRC.
15. The Committee on Energy and Research has repeatedly called for close liaison between the Joint Research Centre and indirect and national research programmes. The Commission has considered this problem in the new multiannual programme and points out that dialogue between the Member States and the JRC took place during the preparation of the programme and of the annual budget. Furthermore the Advisory Committees on Programme Management, which consists of representatives of the Member States, ensure coordination between direct and indirect activities and research carried out on a national basis.

16. As well as by the ACPMs and the GAC, the programme is scrutinised by a series of other committees including:

- a number of internal Commission Committees
- the Scientific and Technical Committee provided for in Article 7 of the Euratom Treaty
- the Scientific and Technical Research Committee (CREST).

IV. FINANCIAL CONSIDERATIONS AND STAFF

17. It is estimated that the new programme (1980-1983) should cost 542.623 m EUA and have a total staff of 2,260 of which the research staff would amount to 1,110. Personnel expenditure comes to 276 m EUA or 51% of the total estimated expenditure, operating expenditure amounting to 266.6 m EUA or 49%.

18. The proportional allocation of funds between the six research topics in the multiannual programme is as follows:

- Nuclear Safety and the Fuel Cycle	48%
- Future forms of energy	16%
- Study and protection of the environment	10%
- Nuclear measurements	9%
- Scientific support to the Commission's sectoral activities	7%
- Operation of large-scale installations	10%

Thus by far the largest part is devoted to energy and energy related actions.

19. It should be noted that the Commission has formulated Article 2 of the draft Council decision in a manner which would appear to be satisfactory to the European Parliament. The appropriations for each year would, of course, be voted in the context of the annual general budget of the European Communities with the European Parliament and the Council acting has the budgetary authority.

20. Obviously the Commission would have to reassess staff expenditure following any Council decision adjusting the level of remuneration.

21. The 2,260 staff required for the new programme is the same as the level laid down for the end of the current programme, including the JRC staff assigned to ESSOR. However, the Commission points out that staff stability has led to an overall ageing and insufficient renewal of technical and scientific skills. New recruitment was limited because of earlier decisions to reduce staff at the Centre.

The Commission has estimated that wastage through resignations, deaths, transfers and retirements amounts to some 40 persons annually. It also points out that an early retirement scheme is being studied which might give the option of voluntary retirement at the age of 60.

22. In order to encourage the renewal and rejuvenation of the staff, the Commission is proposing, as a temporary measure, that with effect from 1980 the JRC should make 70 posts available in excess of the authorised number, this being less than half the natural wastage anticipated over the four years of the programme. The Commission would undertake to restore the situation by the end of the programme.

V. COMMENTS ON THE COMMISSION'S PROPOSAL

23. Generally speaking the choice of actions proposed by the Commission appears to be in accordance with the views of the Committee on Energy and Research, and of the European Parliament, as expressed in its former reports, and in particular in its resolutions on:

- the conditions for a fresh start in Community research at the JRC¹,
- the objectives, priorities and resources for a common research and development policy²,
- the multiannual research programme of the JRC (1977-1980)³.

24. The Committee welcomes the continuation of the 'rolling programme' approach, whereby the proposed new programme will also be reviewed in its third year of operation and may be replaced by another programme at the beginning of what would have been its fourth year. This procedure should lead to a smoother transition between programmes than has been hitherto the case.

25. The Committee also agrees with the emphasizes given to coordination between direct and indirect actions and research carried out in other institutions in the Member States. In this respect the work of the ACPMs is of particular value.

26. The formulation of Article 2 of the Draft Council Decision appears to be compatible with the budgetary policy of the European Parliament, in that the indicative nature of the figures quoted is emphasized. The European Parliament maintains that appropriations and staff numbers must be fixed within the context of the annual general budget of the European Communities, the Council and the European Parliament forming the budgetary authority.

¹ Report by Mr Flämig, Doc. 49/76, OJ No. C 125, 8.6.1976, p. 16

² Report by Mr Krieg, Doc. 71/76, OJ No. C 125, 8.6.1976, p. 18

³ Report by Mrs Walz, Doc. 283/76, OJ No. C 238, 11.10.1976, p. 11

27. The Commission has proposed the recruitment of 70 extra staff from the start of the new programme in order to encourage the renewal and rejuvenation of the staff of the JRC (see paragraph 22 supra). The Commission would undertake to ensure that staff numbers would not exceed 2,260 by the time the programme comes to an end. The Committee on Energy and Research feels that the Commission's desire to introduce new blood into the Centre is justified, and accordingly gives its support to this proposal.

28. The wisdom of the Commission's decision to concentrate largely on nuclear safety and the fuel cycle and future forms of energy has been confirmed by recent events. As oil prices continue to rise and shortages appear imminent, the need for alternative energy sources is obvious. To a great extent nuclear development has been hindered by popular fears with regard to safety. The success of the JRC programme in this area could play a part in helping to make nuclear energy more acceptable to the citizens of the Community.

29. The Committee on Energy and Research is not in a position to judge the technical merits of the projects to be undertaken in the area of reactor safety. However, the political orientation of these activities, and especially the LOBI, SUPER-SARA and LWR primary circuit integrity programmes, meets with the approval of your rapporteur.

30. The serious incident which took place on 28 March 1979 at Three Mile Island nuclear power station, Harrisburg, Pennsylvania, USA, highlights once more the need for intensified research into nuclear safety. The research area 'nuclear safety and the fuel cycle' is particularly relevant to the Three Mile Island incident. The Committee on Energy and Research is pleased to note that the SUPER-SARA project is designed to simulate the behaviour of a Light Water Reactor in the event of coolant loss (such as happened at the Three Mile Island reactor).

31. Work on waste management techniques and experimental studies on molten core behaviour (PAHR) are also important.

32. The SUPER-SARA project relies on the utilization of the ESSOR reactor which has been financed up to now by the Italian Government. The problem posed by ESSOR will be considered in Section VI of this explanatory statement.

33. Another aspect of nuclear energy that gives rise to anxiety on the part of European citizens is the possibility of the proliferation of materials that could be used to produce nuclear weapons. Research on fissile materials control and management, an increase in which has been proposed for the new programme, is being carried out in close collaboration with the Euratom Safeguards Directorate, the operators of nuclear installations and officials of the International Atomic Energy Agency.

The aim of this programme is:

- to develop safeguard techniques for application in the main types of nuclear installations in the field of materials, accountancy and the evaluation of material balance;
- to develop measurement methods, instrumentation and techniques for estimating the isotopic composition of irradiated fuels;
- to study containment and surveillance techniques;
- to study safeguard systems for the whole of the nuclear cycle.

34. Though the Committee on Energy and Research believes that the political approach, e.g. through the Non-Proliferation Treaty, constitutes the best means of preventing the spread of nuclear weapons, nevertheless it is of vital importance to provide all possible technical assistance to the inspection and verification bodies such as the Euratom inspectorate and the IAEA.

35. It is proposed to step up work on solar energy in the new programme. Your rapporteur agrees with this proposal as the value of such work already carried out at the Ispra Centre has been widely acknowledged. Moreover, with the exception of fusion, solar energy is probably the renewable source that could offer the greatest potential in the next century. Your rapporteur is particularly pleased to note that provision has been made within the solar energy programme for technical assistance to developing countries, and that the programme is to be carried out in close coordination with the indirect action programme being undertaken in this field.

36. As a result of the experience gained in the current multiannual programme and of progress made in the thermochemical production of hydrogen, the hydrogen production programme is to be modified. Advanced studies on energy carriers will continue, and this could be of great importance to the Third World, where the distances between points of production and consumption of energy are frequently considerable, as well as to the Community.

37. Research into technological problems associated with thermonuclear fusion is to be continued in the new programme. Direct action in the fusion field is coordinated with the more intensive research carried out by indirect action which includes JET. One part of the new JRC fusion programme would deal with conceptual design studies on fusion reactors and would make a contribution to the design of post-JET machines. This

committee has repeatedly stressed the importance of fusion as a possible major source of energy in the 21st century and consequently endorses the inclusion of a fusion section in the JRC's new programme. Your rapporteur is pleased to note that the new programme would include the operation of the cyclotron and experimental research on the irradiation of materials. The fusion programme will also involve preparatory work for a tritium testing laboratory. This is important as fusion would not necessarily be without environmental problems.

38. A high temperature materials programme, aimed at encouraging the development of these materials which would be required for future energy technologies, includes a high temperature materials information centre, a research project on materials and engineering studies and a data bank in which quantifiable data would be stocked. Your rapporteur agrees with the utility of this work.

39. The research area 'protection of the environment' should account for some 10% of the funds to be made available for the new programme. Among the projects covered is ECDIN, which is to be given special priority and involves the transition towards the operational stage of an information and data network on chemical substances. Work of this nature generally meets with popular approval and the project is politically desirable as evidence of the Community's concern about chemical substances that could pose a threat to the environment.

40. Another aspect of the JRC's environmental programme is its work on remote sensing from space. This could be of considerable value to agriculture and to the prospection of raw materials, including energy sources. The possible contribution that this could make to Third World development is obvious. Under the heading 'remote sensing from space' the Commission has also proposed a project 'protection of the sea', which could contribute to the cleanliness of our maritime areas.

41. The former METRE programme for measurements, standards and reference techniques has been restructured in the light of the experience gained in 1977-1980. A new programme entitled 'nuclear measurements', to be carried out at the Geel establishment, constitutes the continuation of the nuclear part of METRE. This consists of the measurement of nuclear data by means of accelerators, as well as nuclear reference materials and techniques, and the European shielding information service aimed at disseminating information on radiation shielding. The nuclear reference materials programme is of considerable utility to the nuclear industry and to the development of safeguards and thus meets with the entire approval of the Committee on Energy and Research.

42. The research area 'specific support for the Commission's sectoral activities' includes among its six projects, two which are of particular interest to this Committee, namely 'support to safeguards' and 'valorisation of research results'. This Committee has always recognised the importance of the Euratom safeguards inspectorate. The JRC acts as reference laboratory for the analysis of samples taken during the course of safeguards inspections and gives technical assistance to the safeguards directorate. This valuable work should be encouraged and it is appropriate that this be conducted in the Community's own laboratories.

43. Your rapporteur is particularly pleased to note that a serious effort is to be made to valorise the results of JRC research and to encourage the transfer of technology and dissemination of information resulting from the Centre's work.

44. The JRC is to continue operating the HFR reactor both for its own research programmes and for the benefit of programmes carried out by the Member States. This reactor is an important means of irradiation and should be maintained.

VI. THE ESSOR PROBLEM

45. It is proposed to use the ESSOR reactor for the SUPER-SARA project, which is an in-pile experiment simulating the behaviour of light-water reactor fuel in the event of coolant loss. Pursuant to the terms of a contract drawn up under Article 6(c) of the EAEC Treaty, this reactor has been financed so far by the Italian Government, and will be up to the end of the present programme. The Italian Government is furthermore, building the SUPER-SARA experimental loop. It is foreseen that with the new programme the SUPER-SARA loop will be used in a Community framework with United States and Japanese participation, the loop being put at the disposal of the Community by the Italian government.

46. At present the Italian Government supports the staff of 222 required to run ESSOR. As from 1 January 1981, when the contract with Italy comes to an end, the Community will have to cover these staff costs as well as the operating costs of ESSOR within the framework of the SUPER-SARA project.

47. As large sums will have been invested in SUPER-SARA and as the value of this test programme is considerable, the Committee on Energy and Research believes it to be of great importance that the Council take a positive decision with regard to the financing of ESSOR and the ESSOR staff after the end of the contract with the Italian Government so that ESSOR can become a Community asset.

VII. CONCLUSIONS

48. The Committee on Energy and Research endorses the Commission's choice of actions for its proposed new JRC multiannual programme. It is pleased to note the emphasis that has been put on energy, and particularly on nuclear safety and the development of new energies. No efforts should be spared as far as the safety of nuclear installations is concerned. Moreover, increased safety may help to make nuclear energy more acceptable to the general public.

49. As far as new energies are concerned, your rapporteur agrees with the Commission's choice of fusion, solar and hydrogen as the sectors in which the greatest efforts should be made. This Committee also agrees with actions designed to assist the nuclear safeguards inspectorate.

50. The Committee is also pleased to see that, after energy, environmental protection is adequately provided for in the new multiannual programme.

51. This Committee has repeatedly insisted on the greatest possible coordination between direct, indirect and national research programmes. The Commission has devoted considerable attention to the problem of coordination, and the Committee believes that in this respect the ACPMs can play a valuable role. The Committee also agrees with the need for a greater emphasis being given to the evaluation of research results and endorses the Commission's decision to continue its efforts to monitor the progress of each project.

52. The Committee on Energy and Research once more supports the concept of a rolling programme whereby the last year of a multiannual programme becomes the first year of a new programme. This leads to continuity and a smooth transition between programmes.

53. Your rapporteur is particularly pleased to note that the proportion of personnel expenditure to operating expenditure is to be in the ratio of 51% to 49%. He also notes that the formulation of Article 2 of the draft Council decision should not in any way detract from the budgetary powers of the European Parliament.

54. Work on nuclear safety is of the greatest value, and the SUPER-SARA project forms an important part of the Centre's work on nuclear safety. This project will involve considerable expenditure on the part of the Italian Government, expenditure which the Committee believes to be well spent. Consequently this Committee calls on the Council to give a

firm undertaking that it will take over SUPER-SARA as a Community project.

55. The JRC could play an important research and training role in a Community policy of cooperation with developing countries in the field of energy. The projects dealing with solar energy, hydrogen and remote sensing from space have a particular relevance for the Third World. Furthermore, scientists and technicians from developing countries should be able to participate in Ispra courses. This Committee encourages the JRC to make its technical expertise available to Third World countries, and, in particular, the associated ACP states, when required.

56. In its Annual Report for the financial year 1977¹, the Court of Auditors of the European Communities criticised aspects of the financial management and investment programmes of the Ispra and Karlsruhe establishments. The Court's criticisms referred only to specific aspects of management during the year in question, and, consequently, would not be applicable to the proposed new programme. This Committee nevertheless calls on the Commission to ensure that the financial management of the Centre will be conducted henceforth in such a manner as to merit the approbation of the Court of Auditors, which fulfills an invaluable role as auditor and financial controller.

57. In conclusion the Committee on Energy and Research approves the Commission's proposal for a multiannual programme of the Joint Research Centre 1980-1983.

¹ OJ No. C 313, 30.12.1978

OPINION OF THE COMMITTEE ON BUDGETS

Draftsman : Lord BESSBOROUGH

On 21 March 1979 the Committee on Budgets appointed Lord Bessborough draftsman.

It considered the draft opinion at its meetings of 28 and 29 March and 4 and 5 April 1979 and adopted it unanimously at the latter meeting.

Present : Mr Bangemann, vice-chairman and acting chairman;
Lord Bessborough, draftsman; Mr Alber, Mr Amadei, Lord Bruce of Donington,
Mrs Dahlerup, Mr Dankert, Mr Notenboom, Mr Ripamonti, Mr Shaw and
Mr Spinelli.

1. This proposal for a multiannual programme of the Joint Research Centre (1980-1983) is the outcome of a review of the current programme for 1977-1980 undertaken pursuant to Article 3 of the Council Decision of 18 July 1977 adopting a programme for 1977-1980¹, which lays down that the programme is to be reviewed during its third year and may be followed by a new four-year programme.

Content and objectives

2. The programme for 1980-1983 extends a number of current activities, reorients several others, proposes a few new projects and, finally, provides for the winding up of one or two projects.

The key topics are :

- matters of priority concern in nuclear safety;
- the development of future forms of energy;
- the study and protection of the environment;
- the development and execution of reference measurements;
- the provision of specialized scientific and technical support for the Commission's sectoral activities.

The programme concentrates on six research areas, each subdivided into a number of programmes which themselves are broken down into several individual projects.

The following table shows the current and proposed programmes :

CURRENT PROGRAMMES	FUTURE PROGRAMMES
I.1. Reactor Safety	A.1. Reactor Safety
2. Plutonium Fuels and Actinide Research	A.2. Plutonium Fuels and Actinide Research
3. Management of Nuclear Materials and Radioactive Waste (see V.2. below)	A.3. Safety of Nuclear Materials
	A.4. Fissile Materials Control and Management
II.1. Solar Energy	B.1. Solar Energy
2. Hydrogen	B.2. Hydrogen Production, Energy Storage and Transport
3. Thermonuclear Fusion Technology	B.3. Thermonuclear Fusion Technology
4. High Temperature Materials	B.4. High Temperature Materials

¹ OJ No. L 200, 8.8.1977, p.4

III. Environment and Resources	C.1. Protection of the Environment
IV. Measurements, Standards and Reference Techniques (METRE)	C.2. Remote Sensing from Space
V. Service and Support Activities	D.1. Nuclear measurements
1. Data Processing	E.1. Data Processing (see A.4. above)
2. Control of Fissile Material	E.2. Support to Safeguards
	E.3. Support to the Community Bureau of Reference
	E.4. Training and Education
	E.5. Utilization of Research Results
	E.6. Provision of Scientific and Technical Services on request
3. Utilization of the HFR	F.1. Operation of the HFR

This structure takes account of the specific nature of the research objectives and appears an ideal basis for efficient technical and financial management.

3. The Committee on Budgets is pleased to note that this proposal largely satisfies the wishes which Parliament expressed at an earlier date¹. Particular reference can be made here to the following budgetary and financial aspects :

- Annual adjustment of the total budget

The Committee on Budgets and Parliament have repeatedly urged the budgetization of the resources needed each year for multiannual programmes. Article 2 of the proposal for a Council decision, unlike the Council Decision of 18 July 1977 adopting a programme for 1977-1980, states that the figures for the financial resources and staff have an indicative value only.

- Sound balance between appropriations for administrative and investment costs on the one hand and appropriations for staff costs on the other

As indicated below in point 6, the ratio of expenditure on staff to expenditure on scientific and technical management has changed from 57%-43% in the programme for 1977-1980 to 51%-49% in the new programme. In itself,

¹ Resolution embodying the opinion of the European Parliament on the proposal from the Commission of the European Communities to the Council for a multiannual research programme of the Joint Research Centre (1977-1980), OJ No. C 238, 11.10.1976, p.12. Reports on the granting of the discharge in respect of the 1975 and 1976 financial years, Doc. 165/77, 28.6.1977, and Doc. 489/78, 8.12.1978. Report on the draft general budget for the financial year 1979, Doc. 400/78, 23.10.1978.

this decrease is most welcome, of course, but it should be backed up by a cost-benefit analysis; as we shall see later, no such analysis is provided.

- Expansion, control and possible reorientation of the various subdivisions of the programme

With respect to its internal management, the JRC has taken measures to assess the current programmes so that it may introduce the requisite modifications in good time. This scheme provides for half-yearly progress reports and a budget for operational expenditure with monthly allocations to the various research objectives from the overall operational budget.

- Watering can effect

This refers to the fact that the relatively modest amounts earmarked must not be spread over too many projects. Compared with previous programmes, this proposal excels in its choice of activities, the priorities fixed and the concentration of resources, all of which seem to meet the needs of the Community and the wishes of Parliament.

4. However, another request made by Parliament, namely the submission of an analysis of costs and profitability of the research projects, has been ignored. Although the Commission notes that the JRC is considering the assessment of research findings and is making use of a number of indicators to this end, the proposal contains no concrete data concerning the results obtained nor concerning the conclusions which the JRC may have drawn from these results. There is no mention at all of any cost-benefit analysis.

The Committee on Budgets is fully aware of the problems facing the JRC, and for that matter the national research laboratories, in assessing results from this angle and in drawing up a cost-benefit analysis. However, it takes the view that these statistics are indispensable for the budgetary authority and for the institution called upon to grant the discharge, and therefore proposes to insist once again that the Commission submit 'a precise and readily comprehensible report'¹.

5. Staff

The Council Decision adopting the programme for 1977-1980 stipulated that the maximum number of staff should be progressively reduced from 2,118 to 2,038 members.

¹ OJ No. C 238, 11.10.1976, p.13, para.14 of the resolution

The Commission is now proposing that staff should number 2,260: i.e. the 2,038 from the previous programme plus the 222 employees assigned to the ESSOR complex.

At this stage the Commission feels that the number of staff should not be increased. Efforts should be concentrated rather on improving flexibility, achieving optimum efficiency of its laboratories and on wider participation by its technicians in the world of research.

The Commission points out that cutting back and stabilizing staffing levels is likely to result in an ageing of the staff and that, because of the insecurity associated with the contract system, it is not always possible to attract specialists with the requisite experience. The Commission accepts that the overall level of personnel is stabilized, but asks for authorization to anticipate the natural wastage of staff and to have 70 posts available in excess of the authorized number. The Commission undertakes to restore the situation to normal as early as possible, and in any case before the last year of the programme.

In view of the natural wastage caused by resignations, deaths, transfers and retirement, which now amounts to approximately 40 staff per year, the Commission's undertaking seems not unrealistic. The figure may perhaps increase if the voluntary early retirement scheme is introduced. In the light of these statistics and of the considerations set out in point 11(1), the Committee on Budgets has decided to approve these 70 posts.

Now that the level of staff has been stabilized for several years, the time appears ripe to consider whether allocation of staff to the various activities could be improved. Particular consideration must be given to examining the questions whether some staff are not too highly qualified, whether the ratio of administrative to research and maintenance staff is sound, whether the ratio of staff for the JRC's own research projects to staff employed to follow up indirect actions is appropriate to the nature and volume of the work, etc. The Committee on Budgets takes the view that the Court of Auditors should definitely consider this aspect too as part of its control activities.

6. Budget appropriations

The total budget appropriation required amounts to 542.6 million EUA, to be totally financed through the budget and broken down over the four-year

programme as follows :

Nature of expenditure	1980		1981		1982		1983		1984	TOTAL
	CA	PA	CA	PA	CA	PA	CA	PA	CA	
Staff	65.4	65.4	70.8	70.8	69.9	69.9	69.9	69.9	-	276 (51%)
Operating expenditure	67.8	57.6	65.6	65.6	68.4	68.4	64.8	64.8	10.2	266.6 (49%)
TOTAL	133.2	123.2	136.4	136.4	138.3	138.3	134.7	134.7	10.2	542.6

The Commission notes that a comparison with the 1977-1980 programme is hardly relevant since the latter did not include the Commission's support for sectoral policies, measures for the physical protection of establishments and the operation of the ESSOR reactor.

The Committee on Budgets takes the view, however, that such a comparison could be highly relevant; it would suffice to put the corresponding financial data for the 1977-1980 programme and for the activities not included therein side by side.

These data, together with the information on outstanding commitment appropriations from the programme - to which the only reference made is that they are to be cancelled - are nowhere to be found in the explanatory memorandum to this proposal. The Committee on Budgets will revert to this matter during the budgetary procedure for the 1980 budget.

On the other hand, the proposal does contain very detailed information on the allocation of financial resources and staff to the various programmes. A summary table showing this information is set out in the Annex to this opinion.

It should be pointed out that the programme A.1. on Reactor Safety already covers the PAHR project (6.77 million EUA), which still requires approval from the Advisory Committees if it is to be launched in 1982.

The staff costs and operating costs of the ESSOR reactor, which the Italian Government will no longer meet after 31 December 1980, are provided for in the SUPER-SARA project under programme A.1. on Reactor Safety. Pursuant to Article 6(c) of the EAEC Treaty, Italy will finance this reactor until the end of 1980. It should be mentioned in this connection that Italy has given undertakings regarding the construction of the SUPER-SARA's experimental loop, which will be placed at the Community's disposal, too, on 1 January 1981.

This investment is estimated at 12.5 million EUA.

7. Revenue

The programme is entirely financed through the Community budget. Nevertheless, it will generate a certain amount of revenue, in particular from the ESSOR reactor at Ispra, which as mentioned above, has been placed at the disposal of the Italian Government. Item 9220 provides for this revenue (estimated at 6 million EUA in 1980) to cover the expenditure on Item 3330 'ESSOR reactor installations and staff placed at the disposal of the Italian Government'. Apart from this, revenue estimated at 1.9 million EUA is expected from various third parties.

The table in the Annex shows only the net expenditure, i.e. the revenue has already been deducted from the gross expenditure.

Operation of the HFR is still the subject of a supplementary programme financed in equal parts by the Netherlands and Germany. The Commission has, however, adopted this programme as a Community programme so as not to pre-judge the decision of those Member States.

8. Presentation of the financial and budgetary data

The committee notes that the explanatory memorandum to this proposal sets out very clearly the allocation of appropriations to the various programmes but includes very little information on how this data was calculated, the real impact on the 1980 budget, the revenue side of the programme, etc.

9. Observations of the Court of Auditors

The Court of Auditors makes a number of observations on the Ispra Establishment (Italy) and the Karlsruhe European Transuranics Institute (Germany)¹. The aforementioned ESSOR complex in Ispra is in particular the subject of a number of comments which prompt reflexion. The Committee on Budgets - and in particular its Control Subcommittee - is at present investigating this aspect of the matter as part of its procedure for granting a discharge in respect of the 1977 budget. At this juncture let it suffice to express the hope that the Commission will take the opportunity presented by the start of the new multiannual programme to put its affairs in order.

10. Preparation of the programme; liaison with the other institutions and advisory bodies

The Committee on Budgets notes with satisfaction that this programme was drawn up against the background of a permanent dialogue between the

¹ Annual Report of the Court of Auditors for the financial year 1977, Doc. 500/78, 30.1.1979

institutions and competent bodies in the Member States and the JRC. A considerable effort was made to involve the staff as early as the preparation stage of the programme.

The committee notes that the Commission of the European Communities feels that the scope and powers of the existing Advisory Committees on Programme Management need to be extended little or not at all.

The committee shares the concern of the Commission of the European Communities that the whole process of drawing up and adopting research programmes threatens to become excessively complicated, inflexible and time-consuming, to the detriment of the implementation of research activities, and therefore invites the Commission to draw up suitable proposals to facilitate a more flexible policy, but without making the permanent dialogue unwieldy.

CONCLUSIONS

11. The Committee on Budgets :

- (a) notes with satisfaction that the programme for 1980-1983 largely complies with Parliament's repeated requests in the financial and budgetary spheres, especially with respect to:
 - the possibility of adjusting the total budget annually
 - balancing the ratio of expenditure on staff to administrative and investment expenditure
 - providing an ongoing assessment of the programmes' progress
 - concentrating resources on a limited number of important projects;
- (b) points out, however, that Parliament's request for a cost-benefit analysis has still not been met, and urgently repeats its request;
- (c) notes that, as the Court of Auditors and others have pointed out, there are still serious deficiencies in programme management, with respect to the ESSOR complex, and urgently invites the Commission to provide a solution to this problem;
- (d) expresses its satisfaction at the downward trend in the ratio of expenditure on staff to scientific and technical expenditure, to the benefit of the latter;
- (e) considers it appropriate for the Court of Auditors, as the control body, to be closely involved in the allocation of staff, both in terms of number and grade, to the various projects and tasks to be carried out by the JRC, so that the aforementioned cost ratio may be placed in its proper context;
- (f) takes the view that the temporary measure requested by the Commission for 70 additional posts will provide no effective or permanent solution to the Centre's staffing problems, and that attempts should be made to improve project planning and to offer contracts in order to attain a proper ratio between administrative and research staff;
- (g) resolves to consider the allocation of appropriations for the 1977-1980 programme under the budgetary procedure in the light of the statistics requested above;
- (h) welcomes the fact that the programme was prepared carefully and that account was taken of the wishes and prerogatives of the institutions, organs and staff involved in the programme;

- (i) hopes that the Commission will continue along this path with a view to improving its assessment of the activities and enabling them to be adjusted more flexibly to the changing circumstances and needs of the Community;
- (j) reiterates its request for full and clear notification of the financial and budgetary implications of the proposed programme;
- (k) approves the structure of the programme and the indicative allocations for financial resources and staff laid down therein together with the 70 officials requested by the Commission, over and above the number of staff authorized;
- (l) does so, however, on the assurance from the Commission that
 - (i) these new posts, which represent a transitional measure, will have the effect of replacing permanent posts by temporary personnel on contracts and
 - (ii) officials over sixty years of age who retire will not be taken back on temporary contracts;
- (m) delivers a favourable opinion subject to the foregoing conclusions.

SUMMARY TABLE
OF THE 1980 - 1983 PROGRAMME

Appropriations in million EUA

Item	Programme	Number of projects	R.S.	T.S.	Appropriation for staff	Specific appropriations for the programme	Specific appropriations for services	Total appropriations	%
A1	Reactor Safety	11	287	679	78.648	36.680	40.602	155.930	28.73
A2	Plutonium Fuels and Actinide Research	3	117	205	25.505	9.902	23.823	59.230	10.91
A3	Safety of Nuclear Materials	4	52	114	14.22	2.781	5.234	22.235	4.09
A4	Fissile Materials Control and Management	4	60	120	14.982	2.677	5.455	23.114	4.26
	Total Nuclear Safety	22	516	1.118	133.355	52.040	75.114	260.509	48
B1	Solar Energy	4	63	122	15.277	5.381	5.160	25.818	4.76
B2	Hydrogen Production, Energy Storage and Transport	3	40	79	9.862	2.253	3.332	15.447	2.85
B3	Thermonuclear Fusion Technology	6	63	130	16.26	4.988	7.161	28.409	5.24
B4	High Temperature Materials	3	38	63	7.881	3.167	4.928	15.976	2.94
	Total New Energies	16	204	394	49.28	15.789	20.581	85.650	15.78
C1	Protection of the Environment	6	90	174	21.545	4.636	8.939	35.220	6.49
C2	Remote Sensing from Space	2	50	97	12.109	3.060	4.567	19.736	3.64
	Total Protection of the Environment	8	140	271	33.754	7.696	13.506	54.956	10.13
D1	Nuclear Measurements	3	113	194	24.278	7.107	16.562	47.947	8.84

R.S. - Research Staff

T.S. - Total Staff

SUMMARY TABLE OF THE 1980 - 1983 PROGRAMME (continued)

E1	Informatics	2	26	52	6.465	1.641	2.817	10.923	2.01
E2	Support to Safeguards		18	37	4.66	1.529	2.847	9.036	1.67
E3	Support to the Community Bureau of Reference		7	13	1.581	371	773	2.725	0.51
E4	Training and Education		9	17	2.156	544	763	3.463	0.74
E5	Utilization of Research Results		4	14	1.797	510	453	2.760	0.51
E6	Provision of Scientific and Technical Services on Request		32	62	7.696	376	2.877	10.940	2.02
	Total Specific Support to the Commission		96	195	24.355	4.971	10.530	39.856	7.35
F1	HFR Reactor		41	88	10.978	2.039	40.688	53.705	9.90
	TOTAL		1.110	2.260	276	89.642	176.981	542.623 *	100

* including a provisional amount of 6.772 reserved for the 'PAHR' project.

OPINION OF THE COMMITTEE ON THE ENVIRONMENT, PUBLIC HEALTH AND CONSUMER PROTECTION

Draftsman : Mr NOE'

At its meeting of 21 March 1979 the Committee on the Environment, Public Health and Consumer Protection appointed Mr NOE', draftsman.

It considered the draft opinion at its meeting of 2 April 1979 and adopted it uanimously.

Present: Mrs Krouwel-Vlam, chairman; Mr Andersen, Mr Dinesen (deputizing for Mr Edwards), Mr Ellis, Mr Lamberts, Lord St. Oswald, Mr Pløbe, Mrs Squarcialupi, Mr Verhaegen and Mr Wawrzik.

INTRODUCTION

1. In 1976 the Committee on the Environment, Public Health and Consumer Protection gave a favourable opinion on a multiannual programme for the period from 1977-1980. The Programme presently under discussion will **prolong** and replace this 4-year programme and will cover the period from 1980-1983.
2. The present programme does not differ to any large extent in orientation from the current programme and it centres around six research areas (as against five in the 1977-1980 programme)
 - A. - Nuclear safety and the fuel cycle
 - B. - Future forms of energy
 - C. - Study and protection of the environment
 - D. - Nuclear measurements
 - E. - Specific support for the Commission's sectoral activities
 - F. - Operation of large-scale installations.
3. This Committee will confine itself to examining those topics (areas A and C above) of particular interest to the environment.

NUCLEAR SAFETY AND THE FUEL CYCLE

4. This research area is sub-divided into four programmes, each of which is sub-divided into various projects.
5. The first programme concerns reactor safety and the various projects involve studies of behaviour of substances under accident conditions. The two most important projects are the Project LOBI and the SUPER-SARA Project.

It appears that the ESSOR reactor, which is necessary for the execution of the SUPER-SARA Project, presents certain problems with regard to financing. Your Committee can only support the view of the Committee on Energy and Research which calls on the Council to take a decision whereby the operation of this reactor be financed by the Community as from 1 January 1980.

6. The three other programmes in this area are:
 - Plutonium fuels and actinide research
 - Safety of nuclear materials and
 - Safeguards and management of fissile materials.

Your Committee has no particular remark to make concerning these three programmes.

STUDY AND PROTECTION OF THE ENVIRONMENT

7. Under this heading the programmes proposed are:

- Protection of the environment and
- Remote sensing from space.

All the projects are connected with the problem of the introduction of toxic chemical substances into the environment. Here again, your Committee has very little to say except to approve these projects. It draws attention to the ECDIN Project, which has been given a special priority and which should result in the setting up of an information and data network on chemical substances.

8. Research activities are to be continued in the area of remote sensing from space and two projects are proposed:

- Agriculture and
- Protection of the Sea.

9. Your Committee considers that priority should be given to the protection of the sea project and notes that this project will be undertaken by the Community as part of its obligations under the Barcelona Convention.

CONCLUSIONS

10. Your Committee is generally favourable to the continuation of the JRC Programme. It considers that the Programme takes sufficient account of protection of the environment and is pleased to note that the question of reactor safety occupies quite a large place in the Programme.

11. Although the question of alternative sources of energy is more a subject for the Energy and Research Committee, your Committee is nonetheless pleased to note that consideration is being given to solar energy, which must rank as a number one alternative of the future. Your Committee feels that reference should be made to this question in the motion for a resolution drawn up by the Committee on Energy and Research.

12. The importance of the SUPER-SARA Project should be emphasised and your Committee fully supports the position of the Committee on Energy and Research in this matter.